STATEMENT OF BASIS

Meridian Brick LLC, Phenix City Plant 4
Phenix City, Alabama
Russell County
211-0020

This proposed renewal Title V Major Source Operating Permit (MSOP) renewal is issued under the provisions of ADEM Admin. Code r. 335-3-16. The above-named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

Meridian Brick – Plant 4 was issued is MSOP on October 24, 2016 with an expiration date of October 23, 2021. Per ADEM Rule 335-3-16-.12(2), an application for permit renewal shall be submitted at least six (6) months, but not more than eighteen (18) months, before the date of expiration of the permit. The renewal application was received timely on April 21, 2021.

Facility Description

Meridian Brick - Plant 4 manufactures clay facing brick and a limited amount of special clay brick shapes in Phenix City, Russel County.

The following are the significant sources of air pollutants at this facility:

- Tunnel Kilns
- Kiln Solid Fuel System (Hammermill/Scalping Screening)
- Clay Preparation

The following is a summary of facility-wide controlled potential emissions and the reported 2019 actual emissions:

Pollutant	Potential Emissions (TPY)	2019 Actual Emissions (TPY)
PM_{total}	120.11	16.69
$PM_{filterable}$	-	-
PM_{10}	105.97	9.04
$PM_{2.5}$	101.66	8.97
PM_{con}	-	-
SO_2	87.95	35.12
NO_x	64.98	18.34
CO	189.42	62.90
VOC	13.39	4.81
HF	74.48	51.04

HCl	24.68	5.18
Total HAP	110.55	-
GHG (CO_2e)	49,600	-

Renewal Notes

1. The facility requested the current Brick MACT language be updated.
2. The facility requested the use of crushed peanuts as a fuel option to be removed from the permit.
3. Added 40 CFR 63 Subpart JJJJJ requirements for the tunnel kiln.
4. Moved insignificant source (Industrial vacuum cleaner) from Plant 3 to Plant 4. ADEM was notified of this move on July 17, 2018.

Tunnel Kilns

Green bricks are pulled through natural gas/sawdust fired kilns to dehydrate, oxidize, vitrify, and flash the formed clay to create finished brick. The Tunnel Kiln operations consist of three tunnel kilns (sources TK-41-1, TK-42-1, and TK-42- 2) with emission points S-13, S-17 and S-18.

Plant 41's and Plant 42's kiln burns a mixture of sawdust/natural gas, 100% sawdust or 100% natural gas as fuel. Emissions of PM, SO_2, NO_x, CO, VOC, HCl, HF, and other HAPs are generated from these tunnel kilns. No control device is used to control emissions from these sources.

Applicability:

- This process is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "*Major Source Operating Permits"*.

  Rule 335-3-16-.03

- This process is subject to ADEM Admin. Code r. 335-3-4-.04(1), "*Control of Particulate Emissions for Process Industries – General"*.

  Rule 335-3-4-.04(1)

- This process is subject to ADEM Admin. Code r. 335-3-4-.01(1), *"Control of Particulate Emissions - Visible Emissions*".

  Rule 335-3-4-.01(1)

- This facility is subject to 40 CFR 63 Subpart JJJJJ, "*National Emissions Standards for Hazardous Air Pollutants for Brick and Structural Clay Products Manufacturing",* based on total HAPs exceeding the major source threshold.

40 CFR 63 Subpart JJJJJ, §63.8585

- This process is subject to the applicable requirements of 40 CFR 63 Subpart A, "*General Provisions*" as listed in Table 10 of Subpart JJJJJ.

  40 CFR 63 Subpart JJJJJ, §63.8505

Emission Standards:

- The kilns are permitted to burn natural gas, sawdust, or a sawdust/natural gas mixture as fuel.

  Rule 335-3-4-.04

Opacity:

- The facility shall maintain no visible emissions from the Tunnel Kiln stacks.

  40 CFR 63 Subpart JJJJJ, Table 2 and Table 6

Particulate Matter/Non-Hg Metals:

- The particulate matter emission rate from each kiln shall not exceed the allowable set by equation in Rule 335-3-4-.04.

  Rule 335-3-4-.04(1)

- The particulate matter emission rate from each kiln shall not exceed 0.37 lb/ton of brick fired,

  Or the particulate matter emission rate of 0.0021 gr/dscf at 17 % O2,

  Or the Non-Hg metals emission rate of 0.11 lb/hr/

  40 CFR 63 Subpart JJJJJ, Table 1

Hydrogen Fluoride and Hydrogen Chloride:

- HF, HCl, and Cl_2 emissions shall not exceed 57 lb (HCL equivalent)/hr from the collection of all kilns located at this facility.

  40 CFR 63 Subpart JJJJJ, Table 1

Mercury:

- The mercury (Hg) emissions rate from each kiln shall not exceed 0.00033 lb/ton of brick fired, or 91 μg/dscm at 17% O_2 or 0.0019 lb/hr.

  40 CFR 63 Subpart JJJJJ, Table 1

Emissions:

According to the application, potential emissions are based on AP-42 Tables 11.3-2 through 6 for the tunnel kilns, stack test results (where available) and 8,760 hrs/yr. The three tunnel kilns are rated for 9.99 TPH each. Process limits are taken into account.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
ES-13 (TK 41-1)	PM	3.696	16.190
	PM_{10}	3.696	16.190
	$PM_{2.5}$	3.696	16.190
	CO	14.42	63.14
	VOC	0.62	2.71
	NOx	4.95	21.66
	SO2	6.69	29.32
	HF	5.67	24.83
	HCl	1.88	8.23
	Total HAPs	8.41	36.85
ES-17 & 18 (TK 42-1 & TK 42-2)	PM	7.393	32.38
	PM_{10}	7.393	32.38
	$PM_{2.5}$	7.393	32.38
	CO	28.83	126.28
	VOC	1.24	5.43
	NOx	9.89	43.32
	SO2	13.39	58.63
	HF	11.34	49.65
	HCl	3.76	16.45
	Total HAPs	16.83	73.70

Compliance and Performance Test Methods and Procedures:

- Method 5 of 40 CFR 60, Appendix A, or an equivalent method referenced in 40 CFR 63 Subpart JJJJJ, shall be used in the determination of particulate emissions.

  40 CFR 63 Subpart JJJJJ, Table 4 and Rule 335-3-1-.05

- Method 9 or Method 22 of 40 CFR 60, Appendix A, shall be used in the determination of the opacity of the stack emissions.

Rule 335-3-1-.05

- Method 26A or Method 320 of 40 CFR 60, Appendix A, or an equivalent method referenced in 40 CFR 63 Subpart JJJJJ, shall be used in the determination of hydrogen halide and halogen emissions from affected sources.

  40 CFR 63 Subpart JJJJJ, Table 4 and Rule 335-3-1-.05

- Method 26A or Method 320 of 40 CFR 60, Appendix A, or an equivalent method referenced in 40 CFR 63 Subpart JJJJJ, shall be used in the determination of hydrogen chloride emissions from affected sources.

  40 CFR 63 Subpart JJJJJ, Table 4 and Rule 335-3-1-.05

- Method 29 of 40 CFR 60, Appendix A, or an equivalent method referenced in 40 CFR 63 Subpart JJJJJ, shall be used in the determination of metals emissions from affected sources.

  40 CFR 63 Subpart JJJJJ, Table 4 and Rule 335-3-1-.05

- Initial compliance testing was completed on June 11, 2019 to demonstrate compliance with 40 CFR 63 Subpart JJJJJ.

Periodic Monitoring:

- An observation of each emission point associated with the Tunnel Kilns will be accomplished at least daily according to the procedures of Method 22 of 40 CFR Part 60, Appendix A-7.
    - The facility must conduct the Method 22 test while the tunnel kilns are operating under normal conditions for a minimum of 15 minutes.
    - If any visible emissions are observed during any daily check, a Method 9 visible emission observation shall be completed. If opacity greater than 10 percent is observed, the facility must initiate and complete corrective action according to their OM&M plan.
    - The facility may decrease the frequency of the Method 22 testing from daily to weekly for the tunnel kiln stacks if one of the conditions below is met.
        - If no visible emissions are observed in 30 consecutive daily Method 22 checks for any tunnel kiln stack.
        - If no opacity greater than 10 percent (10%) is observed during any of the Method 9 visible emission observations for any kiln stack.
    - If visible emissions are observed during any weekly check and opacity greater than 10 percent (10%) is observed in the subsequent Method 9 visible emission observation, the facility must promptly initiate and

complete corrective action according to their OM&M plan, resume testing of the kiln stack following Method 22 of 40 CFR Part 60, Appendix A-7, on a daily basis, and maintain that schedule until one of the conditions in proviso (c)(i) or (c)(ii) above is met, at which time the facility may again decrease the frequency of Method 22 testing to a weekly basis.

- If greater than 10 percent (10%) opacity is observed during any test conducted using Method 9, the facility must report these deviations by following the requirements in §63.8485.

Rule 335-3-16-.05(c)(1) and 40 CFR 63 Subpart JJJJJ, §63.8370(e)

- The facility must prepare and implement a written operation, maintenance, and monitoring (OM&M) plan according to the requirements in §63.8425.

  40 CFR 63 Subpart JJJJJ, §63.8420(c)

- A performance test must be conducted before renewing the facility's 40 CFR part 70 operating permit or at least every 5 years following the initial performance test, as well as when an operating limit parameter value is being revised.

  40 CFR 63 Subpart JJJJJ, §63.8440(a)

- The facility must minimize dioxin/furan emissions by implementing the following requirements from Table 3 of 40 CFR 63 Subpart JJJJJ.

  - Maintain and inspect the burners and associated combustion controls.

  - Tune the specific burner type to optimize combustion.

  40 CFR 63 Subpart JJJJJ, Table 3

- The facility must minimize HAP emissions during periods of startup and shutdown by following the requirements in Table 3 of 40 CFR 63 Subpart JJJJJ.

  40 CFR 63 Subpart JJJJJ, Table 3

- The facility shall maintain the kiln process rate at or below the kiln process rate determined according to §63.8445(g)(1).

  40 CFR 63 Subpart JJJJJ, Table 2

Recordkeeping/Reporting:

- The facility shall maintain a record of all inspections, to include visible emissions checks, Method 9 observations, problems noted, and corrective actions taken, performed to satisfy

the requirements of periodic monitoring. Each record shall be maintained in a form suitable for inspection for a period of at least five (5) years.

Rule 335-3-16-.05

- If a visible emission observation is required using 40 CFR, Part 60, Appendix A, Method 9 or 22, the results will be documented using an ADEM visible emissions observation report and the cause and corrective action taken will be documents in a form suitable for inspection.

  Rule 335-3-16-.05(c)

- The facility must submit all of the notifications specified in Table 8 to Subpart JJJJJ that are applicable by the dates specified in the table.

  40 CFR 63 Subpart JJJJJ, §63.8480(b)

- This kiln's production rate should be calculated according to the amount of brick produced (in tons) in a 12-month period divided by the number of operating hours in the 12-month period. Monthly records and 12-month rolling total records of the production of fired products for each kiln and monthly operating hours of each kiln shall be maintained in a form suitable for inspection for a period of five (5) years.

  Rule 335-3-16-.05(c)

- The sawdust usage (in lbs/hr) shall be calculated according to the amount of sawdust combusted (in pounds) each month divided by the number of kiln operating hours in each month. Monthly records of the amount of sawdust combusted for each kiln and monthly operating hours of each kiln shall be maintained in a form suitable for inspection for a period of five (5) years.

  Rule 335-3-16-.05(c)

- Records of the daily amount of natural gas usage for each kiln shall be maintained in a form suitable for inspection for a period of five (5) years.

  Rule 335-3-16-.05(c)

- The permittee shall submit a written report containing statements and information concerning emission limitation (emission limits, operating limits) deviations, out of control CMS, period of startup, shutdown, or malfunction to the Department semi-annually.

  40 CFR 63 Subpart JJJJJ, §63.8485(c)(d)&(e) & Table 9

- The permittee shall submit a written report of exceedances of the stack opacity to the Department semi-annually.

  Rule 335-3-16-.05(c)

- The facility shall keep records according to the requirements of §63.8490.

  40 CFR 63 Subpart JJJJJ, §63.8490

Compliance Assurance Monitoring:

These units are not subject to CAM since a control device is not used to achieve compliance with an emissions limitation or standard.

Kiln Solid Fuel System

At Plant 41, sawdust and crushed peanut hull, used to fuel tunnel kiln 1 (source TK-41-1), are delivered via enclosed live feed trailers and unloaded to screw conveyors. The unprocessed feed from the trailer unloading system is then routed to hammermill (HM2), where it is ground to a proper size for use as fuel. The ground fuel is then sent to a high efficiency cyclone (CY1) where it is recovered and routed to the scalping screen (SS1). Any ground fuel that does not pass the scalping screening process is recycled to the hammermill for further grinding. The fuel which passes the scalping screen is then sent to a bucket elevator where it is routed to a surge hopper for distribution into the kiln's solid fuel distributor. The solid fuel distributor then appropriately supplies solid fuel to Plant 41's kiln 1.

At Plant 42, sawdust, used to fuel tunnel kilns 1 and 2 (sources TK-42-1 and TK-42-2), is delivered via enclosed live feed trailers and unloaded to screw conveyors. The unprocessed feed from the trailer unloading system is then routed to hammermill (HM3), where it is ground to a proper size for use as fuel. The ground fuel is then sent to a high efficiency cyclone (CY2) where it is recovered and routed to the scalping screen (SS2). Any ground fuel that is does not pass the scalping screening process is recycled to the hammermill for further grinding. The fuel which passes the scalping screen is then sent to a bucket elevator where it is routed to a surge hopper for distribution into the kiln's solid fuel distributor. The solid fuel distributor then appropriately supplies solid fuel to Plant 42's kilns 1 and 2.

These units would not be subject to 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" because the sawdust is not classified as nonmetallic minerals.

Applicability:

- This process is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "*Major Source Operating Permits"*.

Rule 335-3-16-.03

- This process is subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.04(1), "*Control of Particulate Emissions for Process Industries – General"*.

Rule 335-3-4-.04(1)

- This process is subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.01(1), "*Visible Emissions"*.

Rule 335-3-4-.01(1)

- The sawdust is not considered a nonmetallic mineral. Therefore, these units are not subject to the applicable requirements of 40 CFR 60, Subpart OOO, "*Standards of Performance for Nonmetallic Mineral Processing Plants".*

40 CFR 60 Subpart OOO, §60,670(a)

Emission Standards

Opacity:

- **Rule 335-3-4-.01(1)(a)** states that no person shall emit to the atmosphere from any source of emissions, particulate matter of an opacity greater than twenty percent (20%) over a six (6) minute period. **Rule 335-3-4-.01(1)(b)** states that during one six-minute period in any sixty-minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity. These sources would be subject to this regulation.

Rule 335-3-4-.01(1)

Particulate Matter:

- The particulate matter emission rate from the Hammermills (HM-2 and HM-3) shall not exceed the allowable set by equation in Rule 335-3-4-.04:

$$E=3.59P^{0.62} \ (P<30 tons hr)$$

or

$$E=17.31P^{0.16} \ (P\geq 30 tons hr)$$

Where:
E = Emissions in pound per hour (lb/hr)
P = Process weight per hour in tons per hour (tons/hr)

Expected Emissions:

According to the application, potential emissions are based on AP-42 emission factors and 8,760 hrs/yr.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
HM-2	PM	0.000	0.001
	PM_{10}	0.000	0.000
	$PM_{2.5}$	0.000	0.000
HM-3	PM	0.000	0.001
	PM_{10}	0.000	0.000
	$PM_{2.5}$	0.000	0.000
SS-1	PM	0.001	0.002
	PM_{10}	0.000	0.001
	$PM_{2.5}$	0.000	0.000
SS-2	PM	0.001	0.002
	PM_{10}	0.000	0.001
	$PM_{2.5}$	0.000	0.000

Compliance and Performance Test Methods and Procedures:

- Method 5 of 40 CFR 60, Appendix A, shall be used in the determination of particulate emissions.

  Rule 335-3-1-.05

- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department, shall be used in the determination of the opacity of the stack emissions.

  Rule 335-3-1-.05

Periodic Monitoring:

- A person familiar with Method 9 shall perform an observation once per week, while the units are in operation. If visible emissions appearing to be in excess of 10% opacity are noted during the above-referenced visual check, corrective action must be initiated within

two (2) hours to reduce the emissions.

Rule 335-3-16-.05(c)

- After the corrective action has been performed, the permittee shall conduct another visual check to ensure that the visible emissions have been reduced. If visible emissions appearing to be in excess of 10% are still present, a Method 9 visible emission observation shall be performed.

  Rule 335-3-16-.05(c)

Recordkeeping Requirements:

- The facility shall maintain a record of all visual checks and corrective actions taken. All records shall be maintained in a form suitable for inspection and kept on site for a period of at least 5 years.

  Rule 335-3-16-.05(c)

- The permittee shall submit a written report of exceedances of the stack opacity to the Department semi-annually.

  Rule 335-3-16-.05(c)

Compliance Assurance Monitoring:

These units are not subject to CAM because the pre-controlled emissions do not exceed major source thresholds.

Clay Body Preparation

The Clay Body Preparation operations consist of fugitive emissions only. Clay from a railcar or truck is unloaded into a railhead hopper and apron feeder that feeds a conveyor belt to the primary crusher (PC-1) where it is crushed and conveyed to covered stockpiles. Crushed clay from the covered stockpiles and brick bats are fed to feeders and conveyed to the grinding and screening operation where the material is initially ground with a 384 muller grinder, screened and a portion of the material is re-ground through the hammermill (HM-1) until all material passes the screens. The hammermill is enclosed in a building. Based on emission calculations, the initial grinding, the screening, and the conveying are considered insignificant activities. Emissions of PM are generated from these sources. There is no control device used to control emissions from these sources. The Primary Crusher (PC-1) was constructed in 1985, and the Hammermill (HM-1) was constructed in 1987.

Applicability:

- This process is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "*Major Source Operating Permits"*.

  Rule 335-3-16-.03

- This process is subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.04(1), "*Control of Particulate Emissions for Process Industries – General"*.

  Rule 335-3-4-.04(1)

- This process is subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.01(1), "*Visible Emissions"*.

  Rule 335-3-4-.01(1)

- The Primary Crusher and Hammermill are affected sources at a nonmetallic mineral processing plant according to §60.670(a). Therefore, they are subject to the applicable requirements of 40 CFR 60, Subpart OOO, "*Standards of Performance for Nonmetallic Mineral Processing Plants"*, since Clay is listed as a "nonmetallic mineral" per §60.671.

  40 CFR 60 Subpart OOO, §60,670(a)

- This process is subject to the applicable requirements of 40 CFR 60 Subpart A, "*General Provisions*" as listed in Table 1 of 40 CFR 60 Subpart OOO.

  40 CFR 60 Subpart A, §60.670(f)

Emission Standards:

Opacity:

- Fugitive emissions cannot exceed ten percent (10%) opacity from any grinding mills, screening operations, bucket elevators, transfer points on belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations or from any other affected facility (as defined in §60.670 and §60.671).

  40 CFR §60.672(b) Subpart OOO, Table 3

- Fugitive emissions cannot exceed fifteen percent (15%) opacity from any crusher, for which a capture system is not used.

  40 CFR 60.672(b) Subpart OOO, Table 3

- Transfer points on a conveyor belt or any other affected source that is enclosed in a building must comply with the emission limits in §60.672(a) and (b), or the building enclosing the affected facility or facilities must comply with the following emission limits:

    - Fugitive emissions from the building openings (except for vents as defined in §60.671) must not exceed seven percent (7%) opacity; and

    - Vents (as defined in §60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of Subpart OOO.

  40 CFR Subpart OOO, §60.672(e)

- **Rule 335-3-4-.01(1)(a)** states that no person shall emit to the atmosphere from any source of emissions, particulate matter of an opacity greater than twenty percent (20%) over a six (6) minute period. **Rule 335-3-4-.01(1)(b)** states that during one six-minute period in any sixty-minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity. All other sources would be subject to this regulation.

  Rule 335-3-4-.01(1)

Particulate Matter:

- The particulate matter emission rate from the primary crusher shall not exceed that which is calculated using the process weight equation, as defined in ADEM Admin. Code r. 335-3-4-.04.

  Rule 335-3-4-.04

- The particulate matter emission rate from the hammermill shall not exceed that which is calculated using the process weight equation, as defined in ADEM Admin. Code r. 335-3-4-.04.

  Rule 335-3-4-.04

Expected Emissions:

According to the application, potential emissions are based on AP-42, Section 11.3 (Table 11.3-2) emission factors and 8,760 hrs/yr for the grinding and screening operations (including hammermill). Potential emissions for the primary crusher are based on AP-42 11.17-4 emission factors and 8,760 hrs/yr.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
ES-03	PM	3.59	15.71

	PM_{10}	3.59	15.71
	$PM_{2.5}$	3.59	15.71
ES-05	PM	0.53	2.31
	PM_{10}	0.05	0.21
	$PM_{2.5}$	0.05	0.21

Compliance and Performance Test Methods and Procedures:

- Method 5 of 40 CFR 60, Appendix A, shall be used in the determination of particulate emissions.

  Rule 335-3-1-.05 and 40 CFR §60.675

- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department, shall be used in the determination of the opacity of the stack emissions.

  Rule 335-3-1-.05

Periodic Monitoring:

- An observation of each emission point associated with this source will be accomplished at least weekly by an individual familiar with Method 9. If visible emissions appearing to be in in excess of 10% opacity are noted during the above-referenced visual checks, corrective action shall be initiated within 2 hours to reduce the emissions.

  Rule 335-3-16-.05(c)

- After corrective action has been performed, the permittee shall conduct another visual check to ensure that the visible emissions have been reduced. If visible emissions appearing to be in excess of 10% are still present, a Method 9 visible emission observation shall be performed.

  Rule 335-3-16-.05(c)

Recordkeeping Requirements:

- The facility shall maintain a record of all inspections, including visual emissions checks, any problems noted, and corrective actions taken, performed to satisfy the requirements of periodic monitoring. Each record shall be maintained in a form suitable for inspection for a period of five (5) years from the date of generation.

  Rule 335-3-16-.05(c)

- The Permittee shall submit a written report of exceedances to the Department semi-annually.

Rule 335-3-16-.05(c)

Compliance Assurance Monitoring:

These units are not subject to CAM since a control device is not used to achieve compliance with an emissions limitation or standard.

Recommendation

Based on the above analysis, I recommend that, pending the 30-day public comment period and the 45-day EPA review period, Meridian Brick be issued a renewal for Major Source Operating Permit No. 211-0020. The facility should be able to meet the requirements of this permit and all applicable state and federal air pollution regulations.

_____ July 22, 2021

Haley K. Crumpton Date
Industrial Minerals Section
Energy Branch
Air Division